

Remarks

In view of the above amendments and the following remarks, reconsideration and further examination are requested.

The specification and abstract have been reviewed and revised to make a number of editorial revisions. Due to the number of changes involved, a substitute specification and abstract have been prepared and are submitted herewith. No new matter has been added.

Claim 1 has been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Specifically, the rejection indicates that the term “tube thickness” is indefinite. Regarding this matter, claim 1 has been amended so as to now recite a “wall thickness” of the tubes. As a result, withdrawal of the rejection under 35 U.S.C. §112, second paragraph, is respectfully requested.

Claim 1 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Moranne (US 4,582,127) in view of Letrange. Regarding Letrange, it is noted that two Letrange references (US 6,651,333 and US 5,664,625) were listed on the form PTO-892 enclosed with the Office Action. However, the rejection does not indicate which of the two references is being relied upon. As a result, both Letrange references are considered.

Claim 1 has been amended so as to further distinguish the present invention from the references relied upon in the rejection.

Further, claim 1 has been amended to make a number of editorial revisions. These revisions have been made to place the claim in better U.S. form. None of these amendments have been made to narrow the scope of protection of the claim, nor to address issues related to patentability and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the Doctrine of Equivalents.

In addition, new dependent claims 2-6 have been added. Please note that support for these claims can be found at least at page 6, lines 12-29 of the original specification and Figures 2, 5 and 9.

It is submitted that the above-mentioned rejection is no longer applicable to the claims for the following reasons.

Claim 1 is patentable over the combination of Moranne and Letrange, since claim 1 recites a core structure having, in part, a plurality of seat plates arranged opposite to

each other with a predetermined space interposed therebetween and having tubes and corrugated fins arranged alternately therebetween, the seat plates being provided with connection portions having main body portions and wall portions slanted from the main body portions toward the tubes, wherein the tubes have a wall thickness of 0.13 mm to 0.23 mm, and a slant angle between the connection portions and the main body portions of the seat plates satisfies the following relationship: the slant angle $\geq 25 \times$ (a thickness of the seat plates) + (-125 \times (the wall thickness of the tubes) + 25). The combination of Moranne and Letrange fails to disclose or suggest these features of claim 1.

Moranne discloses a tube end plate 2 having a number of slots 11 and collars 9. The collars 9 surround tube passages 10 whereby tubes 1 pass through the tube end plate 2. (See column 2, lines 20-59 and Figure 1),

Based on the above discussion, it is apparent that Moranne discloses the tube end plate 2 and the tubes 1 that pass therethrough. However, it is apparent that Moranne only discloses a single tube end plate 2 and does not appear to disclose or suggest a plurality of such tube end plates. Therefore, the tube end plate cannot correspond to the plurality of seat plates recited in claim 1.

Further, Moranne fails to disclose or suggest that the tubes 1 have a wall thickness of 0.13 mm to 0.23 mm or that the tube end plate 2 has connection portions having main body portions and wall portions slanted from the main body portions toward the tubes, wherein a slant angle between the connection portions and the main body portions of the tube end plate 2 satisfies the following relationship: the slant angle $\geq 25 \times$ (a thickness of the tube end plate 2) + (-125 \times (the wall thickness of the tubes) + 25).

Finally, as admitted in the rejection, Moranne also fails to disclose or suggest a plurality of corrugated fins.

In light of these deficiencies of Moranne, it is necessary for Letrange to disclose or suggest these features in order for the combination of Moranne and Letrange to render claim 1 obvious.

Letrange ('333) discloses a method of manufacturing an aluminum based collared header plate. However, Letrange ('333) does not disclose or suggest a plurality of corrugated fins. Further, Letrange ('333) does not disclose or suggest any of the above-mentioned limitations missing from Moranne.

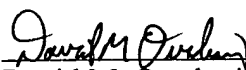
Letrange ('625) discloses a header plate 1 having a number of apertures 13 located therein through which tubes 11 pass. Letrange ('625) also discloses that a number of spacing inserts 12 are located between the tubes 11. (See column 2, line 61 – column 3, line 8 and Figure 1). While the spacing inserts 12 appear to correspond to the claimed corrugated fins, it is apparent that Letrange ('625) fails to disclose or suggest the remainder of the above-mentioned limitations missing from Moranne. As a result, it is submitted that the combination of Moranne and Letrange ('333) or ('625) fails to render amended claim 1 obvious.

Because of the above-mentioned distinctions, it is believed clear that claims 1-6 are allowable over the references relied upon in the rejection. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1-6. Therefore, it is submitted that claims 1-6 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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